MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2016/2017 SESSION

TSE3251 – SOFTWARE VERIFICATION & VALIDATION

(All sections / Groups)

07 Oct 2016
3.00 p.m. – 5.00 p.m.
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This Question paper consists of 4 pages with 5 Questions only.
2. Attempt **ALL FIVE** questions. All questions carry equal marks and the distribution of the marks for each question is given.
3. Please print all your answers in the Answer Booklet provided.

Question 1. [10 Marks]

a. Describe a distinct behavior of software when it has bugs in it. (1 Mark)

b. Based on the organizational structure, answer the questions below:

i. Draw an organizational structure chart for a software project having at least TWO levels down from the top level. The project manager, testers, developers and designers are the team members. (3.5 Marks)

ii. The organizational structure mentioned in Q1 b(i) above has each team (tester, developer and designer teams) whom reporting to the project manager, hence providing independence between each team members. Determine the advantage and disadvantage of having such kind of organization structure for a software development project. (2 Marks)

c. (i). What is the main goal of a software tester? (1 Mark)

(ii). Provide FIVE soft skills required by a software tester to achieve his/her goal as mentioned in Q1 c(i) above. (2.5 Marks)

Question 2. [10 Marks]

a. Provide FOUR emphasis of Agile Software Development approach. (2 Marks)

b. Explain why in the software testing, we must balance up between under testing and over testing in terms of amount of testing and number of missed bugs. (3 Marks)

c. (i). What is static testing or static analysis? (0.5 Mark)

Continued .....

(ii). Provide FOUR test items that can be used for static testing or static analysis.

(2 Marks)

d. The Invoice numbers on a billing system can range between 1,000 and 100,000 inclusive. Provide:

i) the range of values that represent a valid equivalence class.
ii) the range of values that represent invalid equivalence classes.
iii) 2 values that represent valid boundaries.

(2.5 Marks)

Question 3. [10 Marks]

a. Provide a distinct difference between :

(i). a formal and an informal review

(1 Mark)

(ii). a walkthrough and an inspection

(1 Mark)

b. Refer to the following pseudocode and answer the subsequent questions.

1. *Read p*
2. *Read q*
3. *If p + q > 100 then*
4. *Print "Large"*
5. *End if*
6. *If p > 50 then*
7. *Print "p Large"*
8. *End if*

(i). Transform the pseudocode into a flowchart.

(3 Marks)

Continued .....

(ii). Provide sets of test values for p and q to achieve 100% statement coverage and 100% branch coverage. Show the results or outputs of each set of test values.

(2.5 Marks)

c. Is testing costs associated with the costs of conformance or cost of non-conformance? Justify your answer. (2.5 Marks)

Question 4. [10 Marks]

a. One of the benefits of test automation is the reduction of time and effort spent on testing especially for the 'test-to-fail' type of testing.

(i). What is meant by 'test-to-fail' with respect to testing. (1 Mark)

(ii). Give TWO examples of 'test-to-fail' type of testing. (1 Mark)

(iii). Explain why these TWO types of testing in Q4 a(ii) above could benefit from test automation in terms of reduction of time and effort.

(2 Marks)

b. Explain how configuration testing could help to identify configuration problem rather than software bug. (3 Marks)

c. One of the important testing to be carried out for website testing is security testing. Provide TWO other types of testing that are required for website testing.

(3 Marks)

Continued .....

Question 5. [10 Marks]

a. When determining test strategy, the software development project manager may choose to outsourcing the testing task over in-house testing. Identify TWO situations whereby outsourcing the testing task are preferred.

(2 Marks)

b. Proper test case planning and tracking provides a means for proving what was tested or not tested. Describe TWO disadvantages if there is no proper test case planning.

(2 Marks)

c. Refer to the decision table shown below and answer the following question:

Design test cases for Rule 1, Rule 2 and Rule 3 and provide the expected outputs for each rule.

(6 Marks)

Example: Rule 0
Test case: Albert Tan is a 34 years old Malaysian smoker.
Expected outputs: Albert Tan could be insured without 10% discount.

	Rule 0	Rule 1	Rule 2	Rule 3
Conditions				
Malaysian?	True	True	True	False
Age between 18-55?	True	True	False	True
Smoker?	True	False	False	False
Actions				
Insure client?	True	True	False	False
Offer 10% discount?	False	True	False	False

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